SEQUENCE LISTING

<110> Thorner, Jeremey
Alessi, Dario
Torrance, Pamela
Casamayor, Antonio

<120> Screening Methods

<130> 002.00150(MEDY/P22233PC)

<140> 09/868,118

<141> 1999-12-14

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<210> 27

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Pro Arg Thr Ser Ser Phe

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agccatgatt tcgaatttgg caagatctat ggtgttggtt cttactctaa ggttgttagg 180

gcaaagaaga aggaaactgg aactgtgtat gctttaaaga ttatggacaa aaagtttatc 240

accaaggaga ataaaactgc ttatgtgaaa ttggaaagga ttgttcttga tcaacttgaa 300

catcctggga tcattaaact ttacttcacg tttcaagaca catcctcact atatatggca 360

cttgaatctt gtgagggtgg cgagcttttc gaccaaataa ccagaaaagg tcggctatcg 420

gaggatgaag ctcggttcta cactgcagaa gttgtggatg ctcttgagta tatacatagt 480

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gatgacacac atggttctcc atggaacctg acacatattg gagattcttt agccacacag 1080

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ctgatgatat cagcggtgaa gaagcttcag aaaataacga gcaagaaggt gcagctaata 1260

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<213> Saccharomyces cerevisiae

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ggggaacatg atgcttcaat tactcgttca tctttagaca ggaagggcac gataaatcca 180

tcaaattcat cagtggtccc ggttcgtgtt tcatacgatg catcctcatc gacctctact 240

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caaatattga ataaactatt ggcctcgggt gttccaccgc cacataagga gattagtaaa 480

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ccaattgata gtgtggtaga tgaatacttg agtgaaagtg ttcaaaagca atttggtggc 1980

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gtgtattctg gtaaagattt tactcttccc ttccctatca cctctaactc tactatttta 420

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acaaattcaa gcccattact ttattttaca attgaatttg ataattctat tactactatt 660

agtccagata tgggaacgat ggagcaacca gtgtttaaca aaatatcgac atttgatgta 720

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<212> DNA

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tctcagagcg ggtctgaact acaggcttct ccacaaggtc agtttggaga aaaggcattg 180

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cttgaaattg acggttccag gacgattttc ataggatgca aagagagagc agttttaatg 1980

aaactatgga aattaataca taatggaatg accgccaaac ctaaagtagt atcgccgaag 2040

tcggaccata aaatgtttga taagttcatt cttcaaaaaa gacagaatac aaaaaaaaag 2100

aatcaagctc ctcccgtacc tcaatcgaat aggctaataa atggtttacc ggaccgttgc 2160

atcttaaaga cacccgaaga aggcgcactt cacacaaaac gtcccacttc gttgcagacc 2220

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<211> 3247

<212> DNA

<213> Saccharomyces cerevisiae

<400> 42

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gacgcaaaag ccactccaca aagaagcact tcgaatagaa acgttggcga tttacttttg 180

gaaaaaagaa ccgctaagcc tatgattcaa aaggccttga cgaatacgga taatttcatt 240

gaaatgtacc ataatcagca gagaaaaaat cttgatgatg acactattaa agaagtaatg 300

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tacgataata acgatattaa tgaccaaaaa actttggata atatagcggg aagtccccac 420

atggaaaaaa atcgaaacaa agtaaagatt gaacatgact cttcatctca aaaaccaata 480

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<210> 43

<211> 3403

<212> DNA

<213> Schizosaccharomyces pombe

<400> 43

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<211> 1567

<212> DNA

<213> Schizosaccharomyces pombe

<400> 44

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<210> 45

<211> 680

<212> PRT

<213> Saccharomyces cerevisiae

<400> 45

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Lys Glu Ala Lys His Ser Gly Phe Phe His Ser Ser Lys Lys Glu Glu
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Gln Gln Asn Asn Gln Ala Thr Ala Gly Glu His Asp Ala Ser Ile Thr
35 40 45

Arg Ser Ser Leu Asp Arg Lys Gly Thr Ile Asn Pro Ser Asn Ser Ser
50 55 60

Val Val Pro Val Arg Val Ser Tyr Asp Ala Ser Ser Ser Thr Ser Thr
65 70 75 80

Val Arg Asp Ser Asn Gly Gly Asn Ser Glu Asn Thr Asn Ser Ser Gln
□
85 90 95
□

□
Asn Leu Asp Glu Thr Ala Asn Ile Gly Ser Thr Gly Thr Pro Asn Asp
□
100 105 110
□

□
Ala Thr Ser Ser Ser Gly Met Met Thr Ile Lys Val Tyr Asn Gly Asp
□
115 120 125
□

□
Asp Phe Ile Leu Pro Phe Pro Ile Thr Ser Ser Glu Gln Ile Leu Asn
□
130 135 140
□

□
Lys Leu Leu Ala Ser Gly Val Pro Pro Pro His Lys Glu Ile Ser Lys
□
145 150 155 160
□

□
Glu Val Asp Ala Leu Ile Ala Gln Leu Ser Arg Val Gln Ile Lys Asn
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165 170 175
□

□
Gln Gly Pro Ala Asp Glu Asp Leu Ile Ser Ser Glu Ser Ala Ala Lys
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180 185 190
□

□
Phe Ile Pro Ser Thr Ile Met Leu Pro Gly Ser Ser Thr Leu Asn Pro
□
195 200 205
□

□
Leu Leu Tyr Phe Thr Ile Glu Phe Asp Asn Thr Val Ala Thr Ile Glu
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210 215 220
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□
Ala Glu Tyr Gly Thr Ile Ala Lys Pro Gly Phe Asn Lys Ile Ser Thr
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225 230 235 240
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□

Phe Asp Val Thr Arg Lys Leu Pro Tyr Leu Lys Ile Asp Val Phe Ala
245 250 255

Arg Ile Pro Ser Ile Leu Leu Pro Ser Lys Thr Trp Gln Gln Glu Met
260 265 270

Gly Leu Gln Asp Glu Lys Leu Gln Thr Ile Phe Asp Lys Ile Asn Ser
275 280 285

Asn Gln Asp Ile His Leu Asp Ser Phe His Leu Pro Ile Asn Leu Ser
290 295 300

Phe Asp Ser Ala Ala Ser Ile Arg Leu Tyr Asn His His Trp Ile Thr
305 310 315 320

Leu Asp Asn Gly Leu Gly Lys Ile Asn Ile Ser Ile Asp Tyr Lys Pro
325 330 335

Ser Arg Asn Lys Pro Leu Ser Ile Asp Asp Phe Asp Leu Leu Lys Val
340 345 350

Ile Gly Lys Gly Ser Phe Gly Lys Val Met Gln Val Arg Lys Lys Asp
355 360 365

Thr Gln Lys Val Tyr Ala Leu Lys Ala Ile Arg Lys Ser Tyr Ile Val
370 375 380

Ser Lys Ser Glu Val Thr His Thr Leu Ala Glu Arg Thr Val Leu Ala
385 390 395 400

Arg Val Asp Cys Pro Phe Ile Val Pro Leu Lys Phe Ser Phe Gln Ser
405 410 415

Pro Glu Lys Leu Tyr Phe Val Leu Ala Phe Ile Asn Gly Gly Glu Leu
420 425 430

Phe Tyr His Leu Gln Lys Glu Gly Arg Phe Asp Leu Ser Arg Ala Arg
435 440 445

Phe Tyr Thr Ala Glu Leu Leu Cys Ala Leu Asp Asn Leu His Lys Leu
450 455 460

Asp Val Val Tyr Arg Asp Leu Lys Pro Glu Asn Ile Leu Leu Asp Tyr
465 470 475 480

Gln Gly His Ile Ala Leu Cys Asp Phe Gly Leu Cys Lys Leu Asn Met
485 490 495

Lys Asp Asp Asp Lys Thr Asp Thr Phe Cys Gly Thr Pro Glu Tyr Leu
500 505 510

Ala Pro Glu Leu Leu Leu Gly Leu Gly Tyr Thr Lys Ala Val Asp Trp
515 520 525

Trp Thr Leu Gly Val Leu Leu Tyr Glu Met Leu Thr Gly Leu Pro Pro
530 535 540

Tyr Tyr Asp Glu Asp Val Pro Lys Met Tyr Lys Lys Ile Leu Gln Glu
545 550 555 560

Pro Leu Val Phe Pro Asp Gly Phe Asp Arg Asp Ala Lys Asp Leu Leu
□
565 570 575
□

□
Ile Gly Leu Leu Ser Arg Asp Pro Thr Arg Arg Leu Gly Tyr Asn Gly
□
580 585 590
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□
Ala Asp Glu Ile Arg Asn His Pro Phe Phe Ser Gln Leu Ser Trp Lys
□
595 600 605
□

□
Arg Leu Leu Met Lys Gly Tyr Ile Pro Pro Tyr Lys Pro Ala Val Ser
□
610 615 620
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□
Asn Ser Met Asp Thr Ser Asn Phe Asp Glu Glu Phe Thr Arg Glu Lys
□
625 630 635 640
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□
Pro Ile Asp Ser Val Val Asp Glu Tyr Leu Ser Glu Ser Val Gln Lys
□
645 650 655
□

□
Gln Phe Gly Gly Trp Thr Tyr Val Gly Asn Glu Gln Leu Gly Ser Ser
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□

□
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<213> Rattus norvegicus
□

□

<400> 46

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20 25 30

Met Gly Leu Asn Asp Phe Ile Gln Lys Leu Ala Asn Asn Ser Tyr Ala
35 40 45

Cys Lys His Pro Glu Val Gln Ser Tyr Leu Lys Ile Ser Gln Pro Gln
50 55 60

Glu Pro Glu Leu Met Asn Ala Asn Pro Ser Pro Pro Pro Ser Pro Ser
65 70 75 80

Gln Gln Ile Asn Leu Gly Pro Ser Ser Asn Pro His Ala Lys Pro Ser
85 90 95

Asp Phe His Phe Leu Lys Val Ile Gly Lys Gly Ser Phe Gly Lys Val
100 105 110

Leu Leu Ala Arg His Lys Ala Glu Glu Ala Phe Tyr Ala Val Lys Val
115 120 125

Leu Gln Lys Lys Ala Ile Leu Lys Lys Lys Glu Glu Lys His Ile Met
130 135 140

Ser Glu Arg Asn Val Leu Leu Lys Asn Val Lys His Pro Phe Leu Val
145 150 155 160

Gly Leu His Phe Ser Phe Gln Thr Ala Asp Lys Leu Tyr Phe Val Leu
165 170 175

Asp Tyr Ile Asn Gly Gly Glu Leu Phe Tyr His Leu Gln Arg Glu Arg
180 185 190

Cys Phe Leu Glu Pro Arg Ala Arg Phe Tyr Ala Ala Glu Ile Ala Ser
195 200 205

Ala Leu Gly Tyr Leu His Ser Leu Asn Ile Val Tyr Arg Asp Leu Lys
210 215 220

Pro Glu Asn Ile Leu Leu Asp Ser Gln Gly His Ile Val Leu Thr Asp
225 230 235 240

Phe Gly Leu Cys Lys Glu Asn Ile Glu His Asn Gly Thr Thr Ser Thr
245 250 255

Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro Glu Val Leu His Lys Gln
260 265 270

Pro Tyr Asp Arg Thr Val Asp Trp Trp Cys Leu Gly Ala Val Leu Tyr
275 280 285

Glu Met Leu Tyr Gly Leu Pro Pro Phe Tyr Ser Arg Asn Thr Ala Glu
290 295 300

Met Tyr Asp Asn Ile Leu Asn Lys Pro Leu Gln Leu Lys Pro Asn Ile
305 310 315 320

Thr Asn Ser Ala Arg His Leu Leu Glu Gly Leu Leu Gln Lys Asp Arg
325 330 335

Thr Lys Arg Leu Gly Ala Lys Asp Asp Phe Met Glu Ile Lys Ser His
340 345 350

Ile Phe Phe Ser Leu Ile Asn Trp Asp Asp Leu Ile Asn Lys Lys Ile
355 360 365

Thr Pro Pro Phe Asn Pro Asn Val Ser Gly Pro Ser Asp Leu Arg His
370 375 380

Phe Asp Pro Glu Phe Thr Glu Glu Pro Val Pro Ser Ser Ile Gly Arg
385 390 395 400

Ser Pro Asp Ser Ile Leu Val Thr Ala Ser Val Lys Glu Ala Ala Glu
405 410 415

Ala Phe Leu Gly Phe Ser Tyr Ala Pro Pro Met Asp Ser Phe Leu
420 425 430

<210> 47
<211> 766
<212> PRT
<213> Saccharomyces cerevisiae

<400> 47
Met Gly Asn Arg Ser Leu Thr Glu Ala Asp His Ala Leu Leu Ser Lys

1 5 10 15

Pro Leu Val Pro Thr Ser Ala Glu His Thr Gln Thr Gln Glu Tyr Pro

20 25 30

Arg Pro Phe Val Asp Gly Ser Asn Ser Gln Ser Gly Ser Glu Leu Gln

35 40 45

Ala Ser Pro Gln Gly Gln Phe Gly Glu Lys Ala Leu Thr Ser Thr Asn

50 55 60

Arg Phe Ile Pro Leu Ala Asn Asp Asp Pro Gly Met Gln His Glu Met

65 70 75 80

Gly Leu Asp Pro Ser Met Arg Arg Arg Arg Glu Glu Trp Ala Glu Arg

85 90 95

Gly Ala Ala Lys Ile Val Lys Asp Val Val Asp Pro Ala Thr Gly Glu

100 105 110

Leu Thr Lys His Val Val Lys Met Gly Ile Lys Asp Phe Lys Phe Gly

115 120 125

Glu Gln Leu Gly Asp Gly Ser Tyr Ser Ser Val Val Leu Ala Thr Ala

130 135 140

Arg Asp Ser Gly Lys Lys Tyr Ala Val Lys Val Leu Ser Lys Glu Tyr

145 150 155 160

Leu Ile Arg Gln Lys Lys Val Lys Tyr Val Thr Val Glu Lys Leu Ala

165 170 175

Leu Gln Lys Leu Asn Gly Thr Lys Gly Ile Phe Lys Leu Phe Phe Thr
180 185 190

Phe Gln Asp Glu Ala Ser Leu Tyr Phe Leu Leu Glu Tyr Ala Pro His
195 200 205

Gly Asp Phe Leu Gly Leu Ile Lys Lys Tyr Gly Ser Leu Asn Glu Thr
210 215 220

Cys Ala Arg Tyr Tyr Ala Ser Gln Ile Ile Asp Ala Val Asp Ser Leu
225 230 235 240

His Asn Ile Gly Ile Ile His Arg Asp Ile Lys Pro Glu Asn Ile Leu
245 250 255

Leu Asp Lys Asn Met Lys Val Lys Leu Thr Asp Phe Gly Thr Ala Lys
260 265 270

Ile Leu Pro Glu Glu Pro Ser Asn Thr Ala Asp Gly Lys Pro Tyr Phe
275 280 285

Asp Leu Tyr Ala Lys Ser Lys Ser Phe Val Gly Thr Ala Glu Tyr Val
290 295 300

Ser Pro Glu Leu Leu Asn Asp Asn Tyr Thr Asp Ser Arg Cys Asp Ile
305 310 315 320

Trp Ala Phe Gly Cys Ile Leu Tyr Gln Met Leu Ala Gly Lys Pro Pro

325 330 335

Phe Lys Ala Ala Asn Glu Tyr Leu Thr Phe Gln Lys Val Met Lys Ile

340 345 350

Gln Tyr Ala Phe Thr Ala Gly Phe Pro Gln Ile Val Lys Asp Leu Val

355 360 365

Lys Lys Leu Leu Val Arg Asp Pro Asn Asp Arg Leu Thr Ile Lys Gln

370 375 380

Ile Lys Ala His Leu Phe Phe His Glu Val Asn Phe Glu Asp Gly Ser

385 390 395 400

Val Trp Asp Asp Asn Pro Pro Glu Ile Gln Pro Tyr Lys Ile Asn Ala

405 410 415

Glu Ala Met Lys Pro Leu Gln Lys Val Ser Glu Ser Asp Thr Thr Val

420 425 430

Lys Met Ala Asn Leu Gln Leu Ala Gly Asn Gly His Ala Asp Thr Pro

435 440 445

Leu Gln Ala Pro Ala Ala Thr Ser Gln Glu His Ser Val Ile Ser Met

450 455 460

Thr Ala Ala Thr Ala Ala Phe Asn Lys Asp Tyr Thr Ser Gln Pro Lys

465 470 475 480

Leu Gly Ser Lys Ser Ser Thr Ser Val Arg Ser Ala Ser Asn Asn Thr

485 490 495

Asp Arg Glu Val Ile Gln Lys Lys Val Ser Lys Asn Arg Ala Ser Val

500 505 510

Ser Ser Pro Ser Ile Ser Thr Thr Ser Arg Gly Lys Asp Asn Arg Ser

515 520 525

Arg Ser Ser Asp Ala Phe Trp Ser Arg Tyr Leu Gln Asn Met Asp Glu

530 535 540

Arg Val Leu Leu Met Lys Glu Val Ala Leu Ser Thr Arg Asn Leu Glu

545 550 555 560

Asp Ser Pro Val Gly Leu Glu Asn Val Ala Leu Asp Tyr Lys Asn Pro

565 570 575

Leu Asp Ile Glu Pro Pro Thr Asp Ser Ala Gly Lys Phe Tyr Lys Lys

580 585 590

Met Phe Leu Ile Thr Asn Leu Gly Arg Ala Leu Val Phe Val Lys Arg

595 600 605

Arg Ser Leu Ser Met Trp Glu Glu Gln Glu Phe Glu Leu Gln Phe Glu

610 615 620

Leu Glu Leu Asn Asp Val Glu Lys Ile Arg Phe Ile Ser Asp Gln Val

625 630 635 640

Leu Glu Ile Asp Gly Ser Arg Thr Ile Phe Ile Gly Cys Lys Glu Arg

645 650 655

Ala Val Leu Met Lys Leu Trp Lys Leu Ile His Asn Gly Met Thr Ala
660 665 670

Lys Pro Lys Val Val Ser Pro Lys Ser Asp His Lys Met Phe Asp Lys
675 680 685

Phe Ile Leu Gln Lys Arg Gln Asn Thr Lys Lys Lys Asn Gln Ala Pro
690 695 700

Pro Val Pro Gln Ser Asn Arg Leu Ile Asn Gly Leu Pro Asp Arg Cys
705 710 715 720

Ile Leu Lys Thr Pro Glu Glu Gly Ala Leu His Thr Lys Arg Pro Thr
725 730 735

Ser Leu Gln Thr Arg Ser Ser Ser Asn Tyr Ser Lys Leu Leu Ala Arg
740 745 750

Ser Thr Gln Met Arg Lys Asn Met Thr Arg Thr Asp Glu Lys
755 760 765

<210> 48

<211> 592

<212> PRT

<213> Schizosaccharomyces pombe

<400> 48

Met Arg Asn Thr His Asn Pro Asn Glu Thr Glu Ala Ser Glu Asp Ala
1 5 10 15

Glu Asn Asp Thr Gln Ser Glu Ser Asp Leu Ser Phe Asp His Gly Ser
20 25 30

Ser Glu Lys Leu Asn Arg Ala Ser Leu Pro Lys Thr Gln Asn Ser Ala
35 40 45

Ile Pro Gln Ser Asn Ala Leu Asn Thr Thr Pro Asn Glu Ser Thr Ser
50 55 60

Gln Ile Asp Ser Ser Pro Lys Ile Pro Ser Ala Val Pro His Ile Ser
65 70 75 80

Thr Pro Asn Pro Ser Ser Gly Ala Ser Thr Pro Asn Ile Lys Arg Val
85 90 95

Ser Asp Phe Lys Phe Gly Glu Ile Leu Gly Glu Gly Ser Tyr Ser Thr
100 105 110

Val Leu Thr Ala Thr Glu Asn Ser Thr Lys Arg Glu Tyr Ala Ile Lys
115 120 125

Val Leu Asp Lys Arg His Ile Ile Lys Glu Lys Lys Glu Lys Tyr Val
130 135 140

Asn Ile Glu Lys Glu Ala Leu Cys Ile Leu Ser Lys His Pro Gly Phe
145 150 155 160

Ile Lys Leu Phe Tyr Thr Phe Gln Asp Ala His Asn Leu Tyr Phe Val
165 170 175

Leu Ser Leu Ala Arg Asn Gly Glu Leu Leu Asp Tyr Ile Asn Lys Leu
180 185 190

Gly Arg Phe Asn Glu Ile Cys Ala Gln Tyr Tyr Ala Ala Leu Ile Val
195 200 205

Asp Ser Ile Asp Tyr Met His Gly Arg Gly Val Ile His Arg Asp Leu
210 215 220

Lys Pro Glu Asn Ile Leu Leu Asp Asp Asn Met Arg Thr Lys Ile Thr
225 230 235 240

Asp Phe Gly Ser Ala Lys Ile Leu Asn Ser Ser His Gly Ser His Glu
245 250 255

Glu Asp Thr His His Ala Asp Lys Pro Gln Ala His Ser Arg Ser Phe
260 265 270

Val Gly Thr Ala Arg Tyr Val Ser Pro Glu Val Leu Ser Asp Lys Ile
275 280 285

Ala Gly Thr Ala Ser Asp Ile Trp Ala Phe Gly Cys Ile Leu Phe Gln
290 295 300

Met Leu Ala Gly Lys Pro Pro Phe Val Ala Gly Asn Glu Tyr Leu Thr
305 310 315 320

Phe Gln Ser Ile Leu His Leu Ser Tyr Glu Ile Pro Pro Asp Ile Ser
□
325 330 335
□

□
Asp Val Ala Ser Asp Leu Ile Lys Lys Leu Leu Val Leu Asp Pro Lys
□
340 345 350
□

□
Asp Arg Leu Thr Val Asp Glu Ile His Gln His Pro Phe Phe Asn Gly
□
355 360 365
□

□
Ile Lys Phe Asp Asn Thr Leu Trp Glu Leu Pro Pro Pro Arg Leu Lys
□
370 375 380
□

□
Pro Phe Gly His Thr Ser Val Leu Ser Leu Ser Val Pro Asn Ala Ser
□
385 390 395 400
□

□
Asn Lys His Glu Asn Gly Asp Leu Thr Ser Pro Leu Gly Val Pro Ser
□
405 410 415
□

□
Met Val Ser Ala Ser Thr Asn Ala Ala Pro Ser Pro Val Gly Thr Phe
□
420 425 430
□

□
Asn Arg Gly Thr Leu Leu Pro Cys Gln Ser Asn Leu Glu Glu Glu Asn
□
435 440 445
□

□
Lys Glu Trp Ser Ser Ile Leu Gln Asp Asp Glu Lys Ile Ser Lys Ile
□
450 455 460
□

□
Gly Thr Leu Asn Val Tyr Ser Met Ser Gly Ile Asn Gly Asn Asp Ala
□
465 470 475 480
□

□

Phe Arg Phe Phe Ser Ser Leu Phe Arg Lys Arg Lys Pro Arg Thr Phe
□
485 490 495
□

□
Ile Leu Thr Asn Phe Gly Arg Tyr Leu Cys Val Ala Ser Asp Gly Glu
□
500 505 510
□

□
Gly Arg Lys Thr Val Lys Glu Glu Ile Pro Ile Lys Ser Val Gly Met
□
515 520 525
□

□
Arg Cys Arg Met Val Lys Asn Asn Glu His Gly Trp Val Val Glu Thr
□
530 535 540
□

□
Pro Thr Lys Ser Trp Ser Phe Glu Asp Pro Asn Gly Pro Ala Ser Ala
□
545 550 555 560
□

□
Trp Val Glu Leu Leu Asp Lys Ala Ser Ser Ile Ser Leu Pro Phe Gly
□
565 570 575
□

□
Asn His Ser Val Thr Ser Phe Ser Arg Ser Ile Ala Arg Ser Ala Val
□
580 585 590
□

□

□

□

□

□
<210> 49
□
<211> 420
□
<212> PRT
□
<213> Schizosaccharomyces pombe
□

□

<400> 49

Met Asp Leu Glu His Lys Arg Ile Ser Arg Ser Thr Leu Pro Asp Tyr
1 5 10 15

Ala Asp Pro Asp Tyr Phe Glu Ala Arg Gly Glu Arg Asn Pro Val Lys
20 25 30

Pro Gln Ser Ser Asn Val Val Pro Gly Thr Ser His Ile Gly Ser Ile
35 40 45

Lys Ser Pro Ala Asp Tyr Val Phe Gly Asp Ile Ile Gly Asp Gly Ser
50 55 60

Phe Ser Lys Val Arg Arg Ala Thr Asp Lys Lys Ser Trp Lys Glu Tyr
65 70 75 80

Ala Ile Lys Val Leu Asp Lys Lys Tyr Ile Val Lys Glu Asn Lys Val
85 90 95

Lys Tyr Val Asn Ile Glu Arg Asp Ser Met Met Arg Leu Asn Gly Phe
100 105 110

Pro Gly Ile Ser Arg Leu Phe His Thr Phe Gln Asp Asp Leu Lys Leu
115 120 125

Tyr Tyr Val Leu Glu Leu Ala Pro Asn Gly Glu Leu Leu Gln Tyr Ile
130 135 140

Lys Lys Tyr Arg Phe Leu Asp Glu Asn Cys Val Arg Phe Tyr Ala Ala
145 150 155 160

Glu Ile Leu Ser Ser Ile Glu Tyr Met His Ser Cys Gly Ile Ile His
165 170 175

Arg Asp Leu Lys Pro Glu Asn Ile Leu Phe Asp Gly Asn Met His Val
180 185 190

Lys Ile Thr Asp Phe Gly Thr Ala Lys Ile Leu Pro Pro Lys Tyr Val
195 200 205

Asn Ser Pro Asp Tyr Thr Thr Phe Pro Ser Ser Phe Val Gly Thr Ala
210 215 220

Glu Tyr Val Ala Pro Glu Leu Leu Ser Arg Gln Val Val Ser Lys Ser
225 230 235 240

Ser Asp Leu Trp Ala Phe Ala Cys Val Val Tyr Gln Met Ile Val Gly
245 250 255

Ser Pro Pro Phe His Gly Ser Asn Pro Asn Asn Ile Phe Lys Lys Ile
260 265 270

Met Ser Leu Glu Tyr Glu Leu Pro Lys Leu Leu Pro Pro Asp Ile Val
275 280 285

Pro Leu Phe Ser His Leu Phe Arg Ile Gln Pro Ser Asp Arg Ser Thr
290 295 300

Thr Gln Gln Ile Lys Gln Phe Pro Phe Phe Ala Thr Ile Thr Trp Asp
305 310 315 320

Asn Leu Trp Thr Gln Asp Pro Pro Pro Met Gln Ser Phe Arg Pro Asn
325 330 335

Tyr Asn Ile Ala Ile Pro Asn Ala Pro Ala Tyr Tyr Arg Ser Asn Val
340 345 350

Thr Ala Ala Ala Ala Ala Asn Ala Ala Ala Ala Phe Ala Ser Ala Ser
355 360 365

Ile Val Lys His Gln Glu Thr Ala Arg Arg Gln Glu Leu Pro Thr Val
370 375 380

Asn Arg Phe Thr Ala Pro Thr Ala His Tyr Gly Tyr Ala Ser Leu Arg
385 390 395 400

Ser His Gln Met Pro Val Asp Arg Leu Tyr Tyr Lys Leu Val Pro Ser
405 410 415

Ser Glu Ser Ile
420

<210> 50

<211> 491

<212> PRT

<213> Unknown

<220>

<223> Description of Unknown Organism:plant

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<400> 50
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Met Leu Ala Met Glu Lys Glu Phe Asp Ser Lys Leu Val Leu Gln Gly
□
1 5 10 15
□

□
Asn Ser Ser Asn Gly Ala Asn Val Ser Arg Ser Lys Ser Phe Ser Phe
□
20 25 30
□

□
Lys Ala Pro Gln Glu Asn Phe Thr Ser His Asp Phe Glu Phe Gly Lys
□
35 40 45
□

□
Ile Tyr Gly Val Gly Ser Tyr Ser Lys Val Val Arg Ala Lys Lys Lys
□
50 55 60
□

□
Glu Thr Gly Thr Val Tyr Ala Leu Lys Ile Met Asp Lys Lys Phe Ile
□
65 70 75 80
□

□
Thr Lys Glu Asn Lys Thr Ala Tyr Val Lys Leu Glu Arg Ile Val Leu
□
85 90 95
□

□
Asp Gln Leu Glu His Pro Gly Ile Ile Lys Leu Tyr Phe Thr Phe Gln
□
100 105 110
□

□
Asp Thr Ser Ser Leu Tyr Met Ala Leu Glu Ser Cys Glu Gly Gly Glu
□
115 120 125
□

□
Leu Phe Asp Gln Ile Thr Arg Lys Gly Arg Leu Ser Glu Asp Glu Ala
□
130 135 140
□

□
Arg Phe Tyr Thr Ala Glu Val Val Asp Ala Leu Glu Tyr Ile His Ser
□

145 150 155 160

Met Gly Leu Ile His Arg Asp Ile Lys Pro Glu Asn Leu Leu Leu Thr
165 170 175

Ser Asp Gly His Ile Lys Ile Ala Asp Phe Gly Ser Val Lys Pro Met
180 185 190

Gln Asp Ser Gln Ile Thr Val Leu Pro Asn Ala Ala Ser Asp Asp Lys
195 200 205

Ala Cys Thr Phe Val Gly Thr Ala Ala Tyr Val Pro Pro Glu Val Leu
210 215 220

Asn Ser Ser Pro Ala Thr Phe Gly Asn Asp Leu Trp Ala Leu Gly Cys
225 230 235 240

Thr Leu Tyr Gln Met Leu Ser Gly Thr Ser Pro Phe Lys Asp Ala Ser
245 250 255

Glu Trp Leu Ile Phe Gln Arg Ile Ile Ala Arg Asp Ile Lys Phe Pro
260 265 270

Asn His Phe Ser Glu Ala Ala Arg Asp Leu Ile Asp Arg Leu Leu Asp
275 280 285

Thr Glu Pro Ser Arg Arg Pro Gly Ala Gly Ser Glu Gly Tyr Val Ala
290 295 300

Leu Lys Arg His Pro Phe Phe Asn Gly Val Asp Trp Lys Asp Leu Arg

305 310 315 320

Ser Gln Thr Pro Pro Lys Leu Ala Pro Asp Pro Ala Ser Gln Thr Ala

325 330 335

Ser Pro Glu Arg Asp Asp Thr His Gly Ser Pro Trp Asn Leu Thr His

340 345 350

Ile Gly Asp Ser Leu Ala Thr Gln Asn Glu Gly His Ser Ala Pro Pro

355 360 365

Thr Ser Ser Glu Ser Ser Gly Ser Ile Thr Arg Leu Ala Ser Ile Asp

370 375 380

Ser Phe Asp Ser Arg Trp Gln Gln Phe Leu Glu Pro Gly Glu Ser Val

385 390 395 400

Leu Met Ile Ser Ala Val Lys Lys Leu Gln Lys Ile Thr Ser Lys Lys

405 410 415

Val Gln Leu Ile Leu Thr Asn Lys Pro Lys Leu Ile Tyr Val Asp Pro

420 425 430

Ser Lys Leu Val Val Lys Gly Asn Ile Ile Trp Ser Asp Asn Ser Asn

435 440 445

Asp Leu Asn Val Val Val Thr Ser Pro Ser His Phe Lys Ile Cys Thr

450 455 460

Pro Lys Lys Val Leu Ser Phe Glu Asp Ala Lys Gln Arg Ala Ser Val

465 470 475 480

Trp Lys Lys Ala Ile Glu Thr Leu Gln Asn Arg
485 490

<210> 51

<211> 677

<212> PRT

<213> Saccharomyces cerevisiae

<400> 51

Met His Ser Trp Arg Ile Ser Lys Phe Lys Leu Gly Arg Ser Lys Glu
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Asp Asp Gly Ser Ser Glu Asp Glu Asn Glu Lys Ser Trp Gly Asn Gly
20 25 30

Leu Phe His Phe His His Gly Glu Lys His His Asp Gly Ser Pro Lys
35 40 45

Asn His Asn His Glu His Glu His His Ile Arg Lys Ile Asn Thr Asn
50 55 60

Glu Thr Leu Pro Ser Ser Leu Ser Ser Pro Lys Leu Arg Asn Asp Ala
65 70 75 80

Ser Phe Lys Asn Pro Ser Gly Ile Gly Asn Asp Asn Ser Lys Ala Ser
85 90 95

Glu Arg Lys Ala Ser Gln Ser Ser Thr Glu Thr Gln Gly Pro Ser Ser
□
100 105 110
□

□
Glu Ser Gly Leu Met Thr Val Lys Val Tyr Ser Gly Lys Asp Phe Thr
□
115 120 125
□

□
Leu Pro Phe Pro Ile Thr Ser Asn Ser Thr Ile Leu Gln Lys Leu Leu
□
130 135 140
□

□
Ser Ser Gly Ile Leu Thr Ser Ser Ser Asn Asp Ala Ser Glu Val Ala
□
145 150 155 160
□

□
Ala Ile Met Arg Gln Leu Pro Arg Tyr Lys Arg Val Asp Gln Asp Ser
□
165 170 175
□

□
Ala Gly Glu Gly Leu Ile Asp Arg Ala Phe Ala Thr Lys Phe Ile Pro
□
180 185 190
□

□
Ser Ser Ile Leu Leu Pro Gly Ser Thr Asn Ser Ser Pro Leu Leu Tyr
□
195 200 205
□

□
Phe Thr Ile Glu Phe Asp Asn Ser Ile Thr Thr Ile Ser Pro Asp Met
□
210 215 220
□

□
Gly Thr Met Glu Gln Pro Val Phe Asn Lys Ile Ser Thr Phe Asp Val
□
225 230 235 240
□

□
Thr Arg Lys Leu Arg Phe Leu Lys Ile Asp Val Phe Ala Arg Ile Pro
□
245 250 255
□

□

Ser Leu Leu Leu Pro Ser Lys Asn Trp Gln Gln Glu Ile Gly Glu Gln
260 265 270

Asp Glu Val Leu Lys Glu Ile Leu Lys Lys Ile Asn Thr Asn Gln Asp
275 280 285

Ile His Leu Asp Ser Phe His Leu Pro Leu Asn Leu Lys Ile Asp Ser
290 295 300

Ala Ala Gln Ile Arg Leu Tyr Asn His His Trp Ile Ser Leu Glu Arg
305 310 315 320

Gly Tyr Gly Lys Leu Asn Ile Thr Val Asp Tyr Lys Pro Ser Lys Asn
325 330 335

Lys Pro Leu Ser Ile Asp Asp Phe Asp Leu Leu Lys Val Ile Gly Lys
340 345 350

Gly Ser Phe Gly Lys Val Met Gln Val Arg Lys Lys Asp Thr Gln Lys
355 360 365

Ile Tyr Ala Leu Lys Ala Leu Arg Lys Ala Tyr Ile Val Ser Lys Cys
370 375 380

Glu Val Thr His Thr Leu Ala Glu Arg Thr Val Leu Ala Arg Val Asp
385 390 395 400

Cys Pro Phe Ile Val Pro Leu Lys Phe Ser Phe Gln Ser Pro Glu Lys
405 410 415

Leu Tyr Leu Val Leu Ala Phe Ile Asn Gly Gly Glu Leu Phe Tyr His
420 425 430

Leu Gln His Glu Gly Arg Phe Ser Leu Ala Arg Ser Arg Phe Tyr Ile
435 440 445

Ala Glu Leu Leu Cys Ala Leu Asp Ser Leu His Lys Leu Asp Val Ile
450 455 460

Tyr Arg Asp Leu Lys Pro Glu Asn Ile Leu Leu Asp Tyr Gln Gly His
465 470 475 480

Ile Ala Leu Cys Asp Phe Gly Leu Cys Lys Leu Asn Met Lys Asp Asn
485 490 495

Asp Lys Thr Asp Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro Glu
500 505 510

Ile Leu Leu Gly Gln Gly Tyr Thr Lys Thr Val Asp Trp Trp Thr Leu
515 520 525

Gly Ile Leu Leu Tyr Glu Met Met Thr Gly Leu Pro Pro Tyr Tyr Asp
530 535 540

Glu Asn Val Pro Val Met Tyr Lys Lys Ile Leu Gln Gln Pro Leu Leu
545 550 555 560

Phe Pro Asp Gly Phe Asp Pro Ala Ala Lys Asp Leu Leu Ile Gly Leu
565 570 575

Leu Ser Arg Asp Pro Ser Arg Arg Leu Gly Val Asn Gly Thr Asp Glu
□
580 585 590
□

□
Ile Arg Asn His Pro Phe Phe Lys Asp Ile Ser Trp Lys Lys Leu Leu
□
595 600 605
□

□
Leu Lys Gly Tyr Ile Pro Pro Tyr Lys Pro Ile Val Lys Ser Glu Ile
□
610 615 620
□

□
Asp Thr Ala Asn Phe Asp Gln Glu Phe Thr Lys Glu Lys Pro Ile Asp
□
625 630 635 640
□

□
Ser Val Val Asp Glu Tyr Leu Ser Ala Ser Ile Gln Lys Gln Phe Gly
□
645 650 655
□

□
Gly Trp Thr Tyr Ile Gly Asp Glu Gln Leu Gly Asp Ser Pro Ser Gln
□
660 665 670
□

□
Gly Arg Ser Ile Ser
□
675
□

□

□
<210> 52
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<211> 17
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<212> PRT
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<213> Artificial Sequence
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<220>
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<223> Description of Artificial Sequence:peptide
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<400> 52
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Gly Ala Thr Met Lys Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro
□
1 5 10 15
□

□
Glu
□

□

□

□
<210> 53
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<211> 9
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<212> PRT
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<213> Artificial Sequence
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<220>
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<223> Description of Artificial Sequence:peptide
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□
<400> 53
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Phe Pro Gln Phe Ser Tyr Ser Ala Ser
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1 5
□

□

□
<210> 54
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<211> 17
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<212> PRT
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<213> Artificial Sequence
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<220>
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<223> Description of Artificial Sequence:peptide
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□
<400> 54
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Asn Ser Thr Thr Ser Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro
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1 5 10 15
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□
Glu
□

□

□

□
<210> 55
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<212> PRT
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<213> Artificial Sequence
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<223> Description of Artificial Sequence:peptide
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<400> 55
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Phe Leu Gly Phe Ser Tyr Ala Pro Pro
□
1 5
□

□

□
<210> 56
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<211> 17
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<212> PRT
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<213> Artificial Sequence
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□
<220>
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<223> Description of Artificial Sequence:peptide
□

□
<400> 56
□
Gly Thr Val Thr His Thr Phe Cys Gly Thr Ile Glu Tyr Met Ala Pro
□

1 5 10 15

Glu

<210> 57

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide

<400> 57

Phe Leu Gly Phe Thr Tyr Val Ala Pro

1 5

<210> 58

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide

<400> 58

Asp Ala Lys Thr Asn Thr Phe Cys Gly Thr Pro Asp Tyr Ile Ala Pro

1 5 10 15

□
Glu
□

□

□

□
<210> 59
□
<211> 9
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<212> PRT
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<213> Artificial Sequence
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□
<220>
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<223> Description of Artificial Sequence:peptide
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□
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Phe Arg Asn Phe Ser Phe Met Asn Pro
□
  1   5
□

□

□
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<213> Artificial Sequence
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<223> Description of Artificial Sequence:peptide
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□
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Asp Asp Lys Thr Asp Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro
□
  1   5   10   15
□

□

Glu
□

□

□

□
<210> 61
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<211> 8
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<212> PRT
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<213> Artificial Sequence
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□
<220>
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<223> Description of Artificial Sequence:peptide
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□
<400> 61
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Phe Gly Gly Trp Thr Tyr Val Gly
□
  1   5
□

□

□
<210> 62
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□
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<213> Artificial Sequence
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<223> Description of Artificial Sequence:peptide
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□
<400> 62
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Asn Asp Lys Thr Asp Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro
□
  1   5   10   15
□

□
Glu
□

□

□

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<213> Artificial Sequence
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<223> Description of Artificial Sequence:peptide
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□
<400> 63
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Phe Gly Gly Trp Thr Tyr Ile Gly
□
1 5
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□

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<210> 64
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<213> Artificial Sequence
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<223> Description of Artificial Sequence:peptide
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<400> 64
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Gly Asn Arg Thr Ser Thr Phe Cys Gly Thr Pro Glu Phe Met Ala Pro
□
1 5 10 15
□

□
Glu
□

□

□

□
<210> 65
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<211> 9
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<212> PRT
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<213> Artificial Sequence
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<220>
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<223> Description of Artificial Sequence:peptide
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<400> 65
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Phe Arg Gly Phe Ser Phe Met Pro Asp
□
1 5
□

□

□
<210> 66
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<211> 17
□
<212> PRT
□
<213> Artificial Sequence
□

□
<220>
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<223> Description of Artificial Sequence:peptide
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□
<400> 66
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Lys Asp Arg Thr Asn Thr Phe Cys Gly Thr Thr Glu Tyr Leu Ala Pro
□
1 5 10 15
□

□
Glu
□

□

□

<210> 67

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:peptide

<400> 67

Phe Ala Gly Phe Thr Phe Val Asp Glu
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